

4749

**K-65 SILOS - HEADSPACE RADON
CONCENTRATION**

09/09/93

**C:OP:93-1284
FERMCO/DOE-FN
4
LETTER**



Restoration Management Corporation

P.O. Box 398704 Cincinnati, Ohio 45239-8704 (513) 738-6200

Diary
AP
Hold for possible entry
4/24/93

September 9, 1993

U. S. Department of Energy
Fernald Environmental Management Project
Letter No. C:OP:93-1284



Mr. Raymond J. Hansen, Acting Manager
DOE Field Office, Fernald
P. O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hansen:

Reference: Letter, Catherine A. McCord, U.S. EPA to Andrew P. Avel, U.S. Department of Energy, "Removal # 4 Work Plan U. S. DOE Fernald CH6 890 008976."

CONTRACT DE-AC05-92OR21972, K-65 SILOS - HEADSPACE RADON CONCENTRATION

In recent months, we have detected an upward trend in the radon concentrations in Silo 2. This has now reached a level of concern, and we are planning a program that will include a visual inspection of the bentonite cap in addition to establishing an action level to trigger additional actions to mitigate the growing radon concentrations in the Silo 2 headspace. This letter outlines the program and the schedule for its implementation.

The headspace radon concentrations are monitored by a continuous system in addition to grab sampling on a weekly basis. In the earlier part of the year, we were experiencing some difficulties with the sampling instruments; however, this was corrected by implementing modifications to the system in May. Prior to that time, there were indications that Silo 2 had some anomalies but CRU4 was unable to determine a trend until the instrumentation had been rectified. Since the time of system modifications, the trend has been quite evident. The following is a table of the maximum monthly headspace concentration in pCi/L in the K-65 silos, acquired through grab sampling.

	Silo 1	Silo 2
April	581,264	2,258,984
May	535,225	2,541,000
June	1,106,000	3,798,000
July	789,000	4,210,000
August	793,000	3,785,000



474 9

Mr. Raymond J. Hansen
Letter No. C:OP:93-1284
Page 2

The trend is more apparent on the attached graph of the weekly headspace data.

Preliminary modeling indicates that under certain climatic conditions that combined headspace readings from Silos 1 and 2 above 8,000,000 pCi/L will exceed 0.015 pCi/L at the boundary fence; the goal that was established in our previous agreement with EPA, (see reference).

It is evident from the foregoing that the effectiveness of the bentonite cap in Silo 2 has deteriorated. The bentonite cap is an effective method for attenuating radon emissions from the K-65 material as evidenced by the Silo 1 performance. We are speculating that the bentonite cap in Silo 2 has cracked or sloughed from the mounds. However, this cannot be determined or confirmed until the cap can be viewed.

We propose to install TV cameras in Silo 2 in order to better determine the root cause for the elevated radon concentrations. This will involve the preparation of a work plan, informing the regulators, and the public prior to opening the silo, the installation of the cameras, and the actual determination of the problem. The tentative schedule for these activities is as follows:

ACTIVITY	DATE SCHEDULED
Preparation of the Work Plan	September 10, 1993
DOE Approval of the Work Plan	September 14, 1993
Notification of the Regulatory Agency	September 20, 1993
Complete Installation of Cameras	September 27, 1993
Report and Recommendation	October 6, 1993
DOE Concurrence with Recommendation	October 11, 1993

In addition, CRU4 is preparing the Silo 1 and 2 Removal Action Final Report, which is currently scheduled to be submitted to DOE on or before September 30, 1993. This final report, through the use of modeling, shall establish a risk based action level for radon concentration in the headspace. When and if the subject action level is reached, additional action would be implemented to further attenuate radon releases from one or both of the K-65 silos. The additional action currently envisioned would be to perform a maintenance action to apply additional bentonite to the silo waste surface.

002



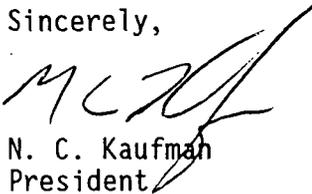
474

Mr. Raymond J. Hansen
Letter No. C:OP:93-1284
Page 3

We believe the foregoing to be the most proactive and efficient course of action. We will be submitting the initial work plan to you on September 10, 1993, at which time we should convene a meeting to obtain concurrence on the path forward.

If you have questions concerning our course of action, please contact Wilf Pickles at 648-6610.

Sincerely,



N. C. Kaufman
President

NCK:WSP:bjd
Attachments

c: D. J. Carr
P. F. Clay
R. C. Emerton
H. H. Glassey
R. Mendelsohn, DOE Contract Specialist
D. A. Nixon
W. S. Pickles
File Record Storage Copy 102.1

Radon Concentration

DLS Data

Silo #1 and #2, April to August 93

